

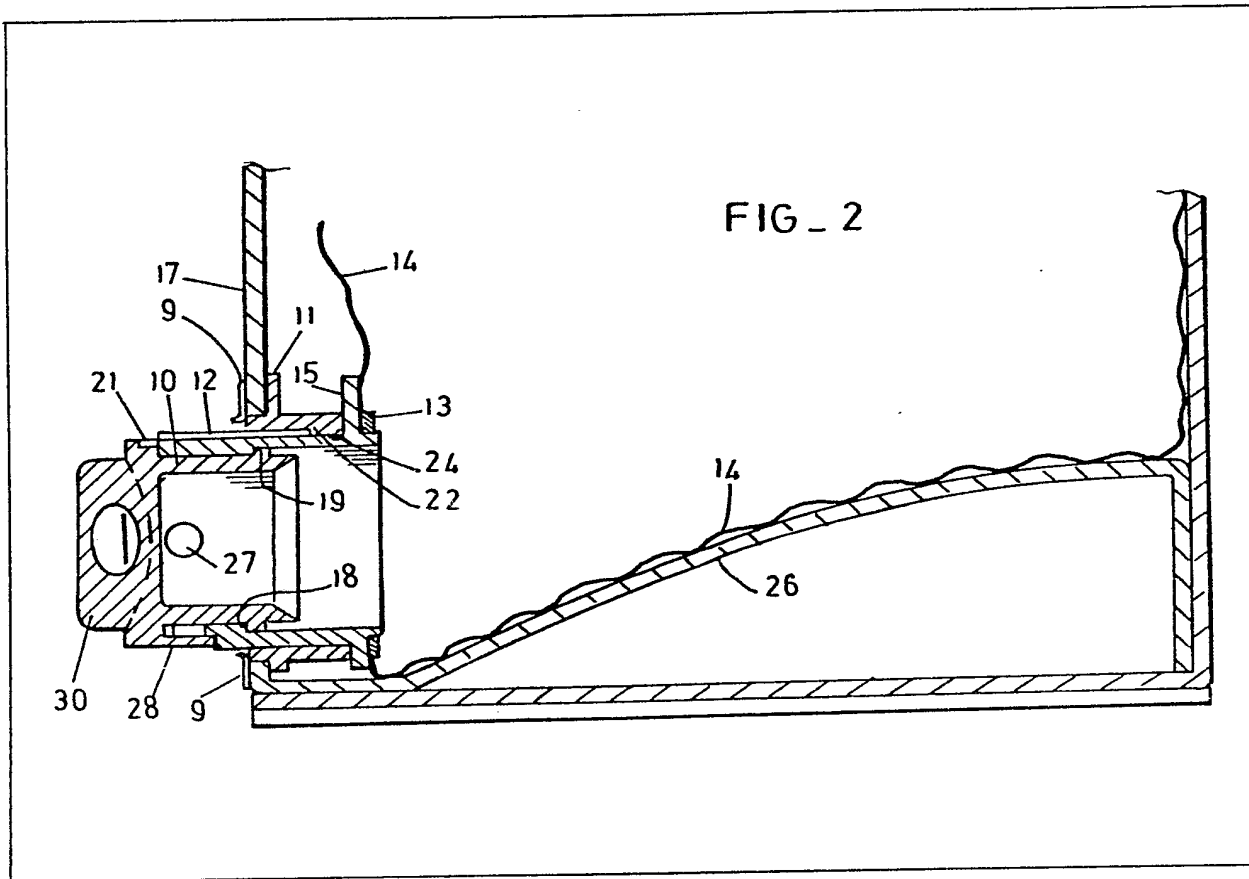
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FIG. 1

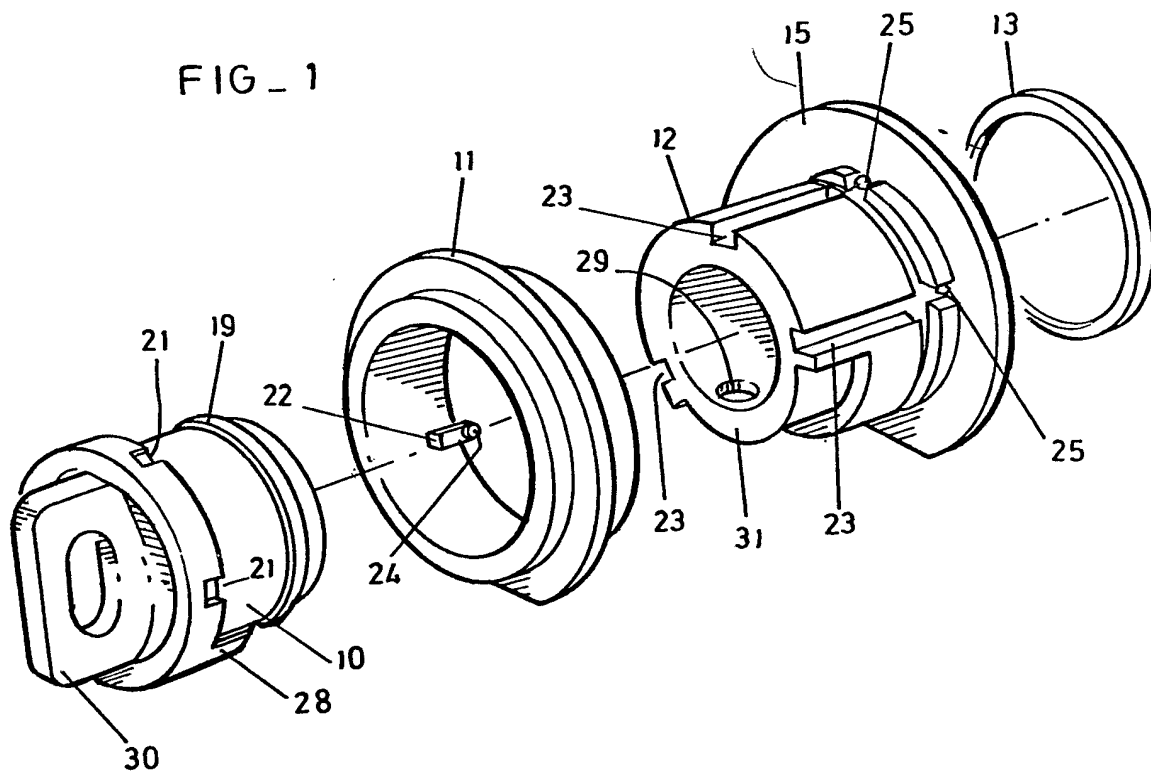
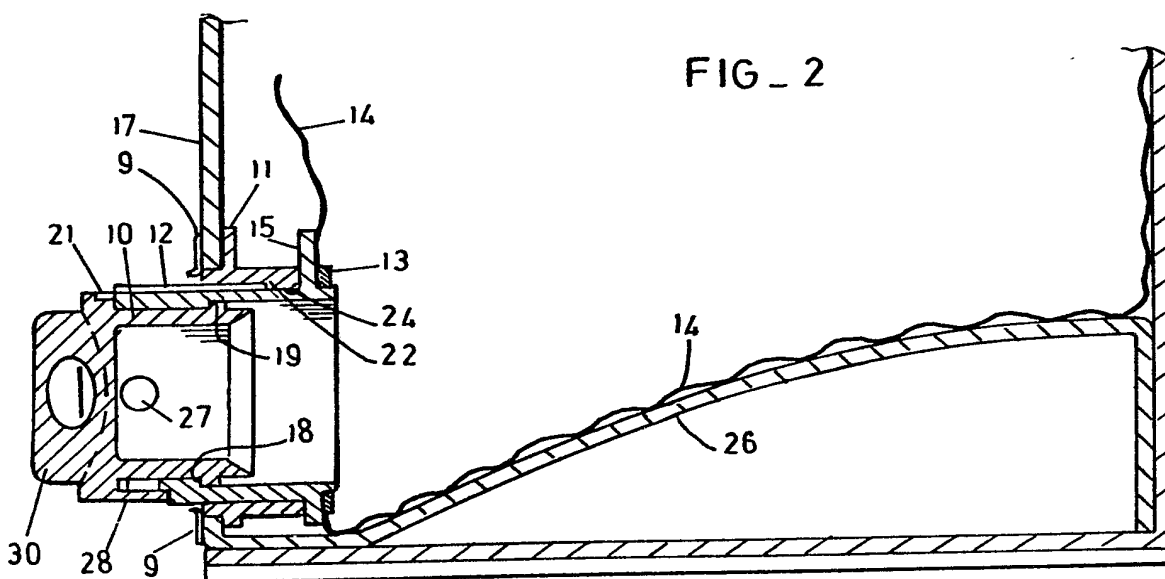
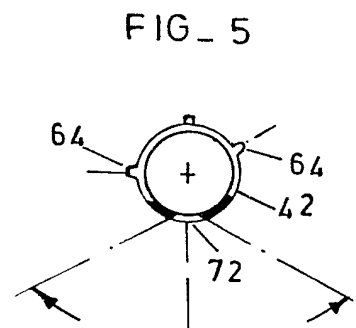
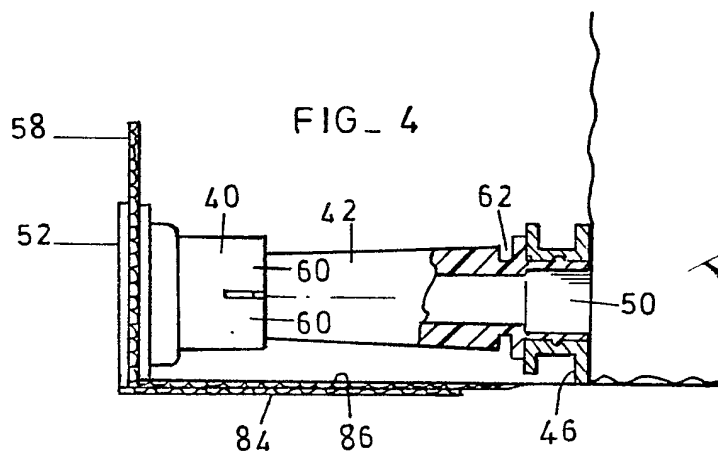
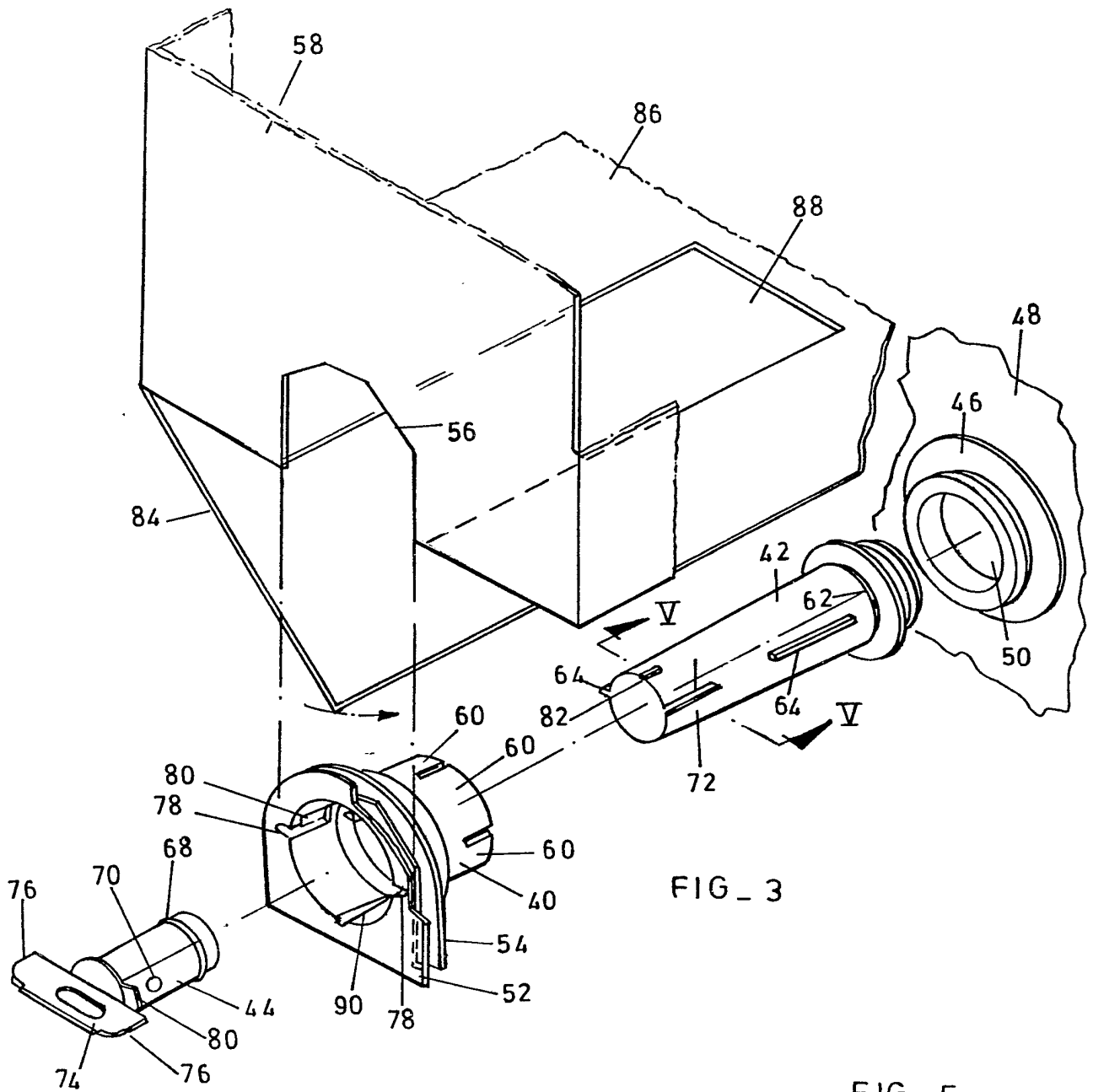


FIG. 2





SPECIFICATION

A composite liquid container and a tap therefor

Field of the Invention

This invention relates to composite liquid
 5 containers of the bag-in-the-box type. The
 invention is particularly concerned with a tap for
 such a container. Such a container comprises an
 inner bag made from flexible plastics and
 10 containing the liquid, and an outer box made of
 cardboard. The liner is provided with a tap so that
 the contents of the bag may be dispensed. The
 invention is also particularly applicable to
 containers for containing liquids to be kept out of
 contact with air, such as wine.

15 Background of the Invention

In one such composite container the bag is
 secured to the outer container and a separate tap
 has to be inserted prior to use. The tap pierces a
 frangible diaphragm formed by the bag across the
 20 socket into which the bag is inserted and by which
 it is held. The tap projects from the outer container
 and cannot be removed whilst the bag contains
 liquid, so that storage problems are created.

In another container, a tap is secured to the bag
 25 initially, but once the tap is positioned in the
 outside container it cannot readily be moved back
 for storage purposes.

Summary of the Invention

According to the present invention, there is
 30 provided a tap for a composite liquid container
 having an inner bag made of a flexible sheet
 material for containing the liquid and an outer
 container made of a relatively rigid sheet material,
 the tap having a mount adapted to be fixed in a
 35 wall of the outer container, a hollow tubular
 section which has one end adapted to
 communicate with the interior of the inner bag
 and which is axially movable relative to the mount,
 and a valve arranged to close a liquid dispensing
 40 opening at the other end of the tubular section.

The hollow tubular section of the tap can be
 slidable in the mount, so that it can easily be
 pulled through the mount to a position where the
 dispensing opening is exposed, or pushed back so
 45 that no portion of the tap projects outside the
 mount.

The tap may be shaped so that it is a snap-fit in
 a bush surrounding an opening in the bag. The
 invention also extends to a method of filling and
 50 closing the inner bag of a composite liquid
 container, wherein the bag is filled through the
 opening surrounded by a bush, and once filled the
 bag is closed by the snap-fitting the tap into the
 bush.

Furthermore, the invention extends to a
 composite liquid container having an inner bag
 made of a flexible sheet material and containing
 liquid and an outer container made of a relatively
 rigid sheet material, with a tap as set forth above
 60 having its hollow tubular section fitted to the inner
 bag and its mount fixed to a wall of the outer
 container.

The outer container may be formed with a false
 floor which slopes towards the position of the
 65 mount, so that the bag can be more readily
 emptied of its contents.

Other preferable features and advantages of the
 present invention will become apparent from the
 following description with reference to the
 70 drawings, and from the appended claims.

Brief Description of the Drawings

The invention will now be further described, by
 way of example, with reference to the
 accompanying drawings, in which:

75 Figure 1 is an exploded view of a first
 embodiment of a tap in accordance with the
 invention;

Figure 2 is a cross section through a composite
 liquid container including the tap of Figure 1;

80 Figure 3 is an exploded view of a second
 embodiment of a tap in accordance with the
 invention, shown in conjunction with an outer
 container; and

85 Figures 4 and 5 are details of the tap shown in
 Figure 3.

Description of Preferred Embodiments

The tap illustrated in Figure 1 is composed of
 four parts: a spigot member 10, a mount 11, a
 hollow tubular section 12 and a securing ring 13.
 90 These parts are shown assembled in Figure 2.

As can be seen from Figure 2, a bag 14 is
 secured to the rear of a flange 15 on the section
 12 by means of the ring 13. In an alternative
 construction the bag 14 may simply be sealed to
 95 the flange 15 by an adhesive heat seal.

The mount 11 is secured in a hole in a
 corrugated cardboard container 17.

The member 10 fits into the tubular section 12
 and is retained by means of a resilient rib 19
 100 engaged behind a shoulder 18 in the section 12.
 During transport the member 10 is engaged in the
 section 12, but the member 10 and section 12 are
 pushed into the mount 11 for notches 21 on the
 member 10 to engage with protruberances 22 on
 105 the inside of the mount. Also the mouth of the
 mount 11 is closed by means of a tearaway seal,
 the remains of which are shown at 9.

In use the seal 9 is torn away and the member
 10 pulled out for grooves 23 on the section 12 to
 engage with the protruberances 22.

Further pulling produces the position shown in
 Figure 2 at which point projections 24 on the
 mount 11 engage in dimples 25 on the section 12
 to retain the section 12 in this axial position. Since
 115 the parts 11 and 12 are formed of resilient
 plastics, the section 12 can be pushed back by
 pushing on the member 10 to get the tap back
 into the interior of the container 17.

The bag as shown in Figure 2 rests on a sloping
 120 false bottom 26 to the container 17. Thus the bag
 14 can be almost completely drained of its
 contents without tilting the container 17.

The member 10 is formed with a dispensing
 hole 27 and a wiper 28 which fits over the rim 31
 125 of the section 12 which also has a hole 29. By

turning a handle 30 the holes 27 and 29 may be brought in register for liquid to be dispensed from the bag 14. When the holes are turned out of register the wiper wipes over and closes the hole

5 29 from the outside.

The bag 14 may be filled in a conventional manner through an edge portion which is sealed after filling. However, it is preferred to fill the bag 14 with the member 10 removed from the section 12 through the bore of the section 12. After filling, the member 10 is inserted to seal off the contents of the bag 14.

The embodiments shown in Figures 3, 4 and 5 will now be described.

15 The tap consists of a mount 40 and a hollow tubular section 42, with a spigot member 44 which fits into the end of the section 42. A plastics bush 46 is sealed to a plastics inner bag 48, around an opening 50 in the bag. The bush 46 can be sealed to the bag 48 by any suitable method, for example heat sealing. Before proceeding any further, it should be noted that the bag 48 can conveniently be filled through the opening 50.

20 The mount 40, tubular section 42 and spigot 44 form a single unit, prior to connection with the bag 48. The mount 40 has a collar 52 which includes a non-circular circumferential groove 54 which fits into a correspondingly shaped cut-out 56 in a cardboard outer container 58. Thus, once the mount has been fitted in the cut-out 56 it cannot rotate relative to the container.

The mount 40 has an axial bore through which the tubular section 42 slides. Note that the section 42 is tapered, and has a smaller diameter at its outermost end than at its innermost end. The mount 40 has resilient tongues 60 around its central aperture. The outermost end of the section 42 is a loose fit in the mount 40, but as the section slides through the mount, the taper will begin to spread the tongues 50 apart until they resiliently engage over a ridge 62 at the right hand end of the tubular section 42.

This resilient engagement permits the tubular section to be firmly held in its extended position, ready for dispensing of liquid. The taper ensures that the transition to this engaged position is smooth.

Since the tubular section 42 is tapered, the tongues 60 do not grip the tubular section except when they are engaged with the ridge 62 and thus do not hinder the axial movement of the tubular section through the mount.

Ribs 64 on the tubular section 42 engage in grooves 66 in the mount 40, and prevent the tubular section 42 from rotating as it slides through the mount.

The spigot 44 has an annular shoulder 68 which engages behind an internal step in the tubular section 42, to retain the spigot in place. The spigot is generally tubular and has a dispensing opening 70 through its wall which is arranged to register with an opening 72 through the wall of the section 42. The spigot 44, once fitted in the section 42 can thus be rotated between a position where the holes 70 and 72

register with one another, for dispensing of liquids, and a position where they do not register, when the tap is closed. The spigot has a handle 74 by means of which it can be rotated relative to the hollow section 42, to open and close the tap.

70 The handle 74 also serves to lock the tap in its retracted position within the box. To bring the tap into its retracted position, axial pressure is first exerted on the tap, so that the tongues 60 ride back over the ridge 62. The tubular section 42 is then pushed right through the mount. With the handle in the orientation shown in Figure 3 relative to the mount, the outermost wings 76 of the handle slide into grooves 78 in the mount. The wings 76 may be tapered to facilitate engagement with the grooves 78. The grooves 78 end in a circumferentially enlarged area 80, so that once the handle has been pushed fully home, it can then be rotated a small amount (which is insufficient to bring the openings 70 and 72 into register with one another) in order to lock the handle in the mount. The connection will thus be seen as being of the bayonet type. When the handle is locked in this position, its outer edge will lie flush with or within the outer surface of the collar 52 of the mount 40. Since the outer surface of the collar is virtually flush with the surface of the container 58, it will be seen that nothing projects from the outer surface of the container.

95 Prior to sale, the front of the mount 40 will be covered by means of a tearaway seal to prevent pilferage of the contents. The seal will be torn away for use, and then the tap can be extended or retracted as often as desired. In particular, when it is desirable to keep the container in a refrigerator, the tap can be retracted and will then present no obstruction at the exterior of the container.

Once the tap has been assembled and the bag has been filled, the right hand end of the tubular section 42 is simply plugged into the bush 46, and cooperating formations on the two parts ensure that they become permanently connected by a liquid-tight seal.

100 Rotational movement of the handle 74 once the tap has been extended is limited by a circumferentially projecting part-circular flange 80 on the spigot 44 and a lug 82 at the left hand end of the tubular section 42, or by a similar arrangement between the spigot and the tubular section.

115 The embodiment shown in Figures 3, 4 and 5 does not include a wiper corresponding to the wiper 28 in Figures 1 and 2, but it would be possible to provide such a wiper. Alternatively however, Figure 5 shows how the opening 72 in the tubular section 42 is made with a widely diverging mouth, to prevent drops of liquid being retained on the edges of the opening.

As can be seen in Figure 4, the flanges on either side of the groove 54 are of a different depth, to allow for the thickness of the cardboard forming the base 86 of the outer container 58.

The filled bag 48 to which the tap shown in Figure 3 has been attached is inserted in the box 58, with the box in the configuration shown, i.e.

with a bottom flap 84 not yet folded into position. The bag is held above the base 86 of the container, and the tap assembly is lowered through the opening 88, so that the mount 40 can be raised up into the cut-out 56. Once the mount is in its correct position in the cut-out, the flap 84 can be raised and glued into position to hold the tap in place.

The mount 40 also has a tapering channel 90, so that any liquid which drops from the retracted tap is led to the outside of the mount, where it can be wiped away, rather than being trapped in an inaccessible part of the mount.

The embodiment shown in Figures 3, 4 and 5 can be used with a container including a false bottom 26 as shown in Figure 2.

CLAIMS

1. A tap for a composite liquid container having an inner bag made of a flexible sheet material for containing the liquid and an outer container made of a relatively rigid material, the tap having a mount adapted to be fixed in a wall of the outer container, a hollow tubular section which has one end adapted to communicate with the interior of the inner bag and which is axially movable relative to the mount, and a valve arranged to close a liquid dispensing opening at the other end of the tubular section.

2. A tap as claimed in claim 1, wherein the tubular section is axially movable between two end positions, and wherein in a first of the end positions no part of the tap projects beyond the outer face of the mount, and in the second of the positions an operating member for the valve and parts of the hollow tubular section defining the dispensing opening project beyond the outer face of the mount.

3. A tap as claimed in claim 2, wherein the hollow tubular section can be resiliently clipped in the second position.

4. A tap as claimed in claim 2 or claim 3, wherein the tubular section can be locked in the first position.

5. A tap as claimed in any preceding claim, wherein the tubular section is axially slidable in the mount.

6. A tap as claimed in claim 5, wherein the tubular section and the mount are complementally shaped to prevent the tubular section rotating in the mount.

7. A tap as claimed in any preceding claim, wherein the tubular section tapers and is larger at

said one end than at the said other end.

8. A tap as claimed in any preceding claim, wherein the mount is shaped so that it can be clipped into a wall of an outer container, and will not rotate relative to the outer container.

9. A tap as claimed in any preceding claim, wherein the liquid dispensing opening is an opening through the wall of the tubular section, and the valve includes a tubular portion fitting inside the tubular section and having an opening adapted to register with the dispensing opening in one position of the valve.

10. A tap as claimed in claim 9 when dependent on claim 4, wherein the locking of the tubular section in its first position is achieved by a bayonet-type connection between a valve operating member and the mount, which connection is engaged by rotation of the valve operating member by a degree less than that needed for opening the dispensing opening.

11. A tap as claimed in any preceding claim, wherein the said one end of the tubular section is adapted to be snap fitted into a bush surrounding a filling opening of a bag to form a liquid-tight joint.

12. A tap as claimed in claim 9, wherein the edges of the dispensing opening are chamfered on the outside of the tubular section.

13. A tap as claimed in claim 9, wherein the valve tubular portion includes a wiper arranged to wipe over and close from the outside the opening through the wall of the tubular section.

14. A composite liquid container to which is attached a tap as claimed in any preceding claim.

15. A composite liquid container as claimed in claim 14, wherein the outer container is formed with a false floor which slopes towards the position of the mount.

16. A method of filling and closing a composite container, comprising the steps of introducing liquid into the container through an opening in the container surrounded by a bush sealed to the container wall, and, after filling, snap fitting the tubular section of a tap as claimed in any one of claims 1 to 13 into the bush, to close the container.

17. A tap substantially as herein described, with reference to any one embodiment shown in the accompanying drawings.

18. A composite liquid container substantially as herein described with reference to any one embodiment shown in the accompanying drawings.

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ABSTRACT:

A composite liquid container comprises a flexible, liquid-containing bag (14) inside a rigid box (17). A tap (10, 11, 12, 13) which projects from the bag (14) through the box (17) serves to dispense the liquid. So that the tap can be easily extended from or returned into the box, the tap has a hollow tubular section (12) which

slides through a mount (11) permanently fixed in a wall of the box.

The tubular section can be locked in either its extended or its retracted position. 